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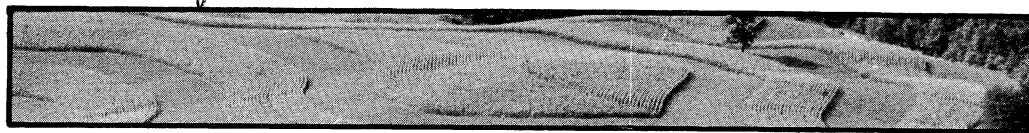
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AGRONOMY GUIDE



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Soil Temperatures and Corn Planting in Indiana

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Indiana farmers are confronted each year with the decision when to begin corn planting, therefore they must consider temperature of the soil, how it can be measured and the future weather conditions.

Area and Week

Dates of usual corn planting time, according to USDA Weekly Crop Report Summaries, begin the last week of April in Southwestern Indiana, the second week of May in Central Indiana and the third week of May in Northern Indiana. These beginning corn planting dates are closely related to soil temperatures at depths of 2 to 4 inches.

Soil Temperature

Germination of corn occurs when soil temperatures are 50 to 52°F between 7 and 8 a.m. in loam soils at a depth of 2 to 4 inches, but heavy wet clay soils should be 3° to 5°F warmer whereas sandy soils may be a degree or two cooler. This time (7 to 8 a.m.) represents the daily low point of soil temperatures and is a better planting guide than readings taken later in the day. Soil temperatures can be expected to increase 10 to 15 degrees by mid-afternoon

or from 65° to 75°F on a sunny, moderately dry day in late April and May.

Soil temperatures reading at planting depth taken at 7 to 8 a.m. often exceeds the early morning minimum air temperatures by 2 to 3 degrees. An afternoon reading around 4 p.m. usually exceeds maximum air temperatures by a similar amount. Therefore, the daily average soil temperatures at planting depths usually exceed daily average air temperatures by 2 to 3 degrees during the spring season.

Measurement

Measurements of soil temperature should be made in areas that best represent soil texture and color of the field to be planted. An average of 2 to 3 measurements in bare soil at different locations is more reliable than a single reading. A series of successive morning readings as the planting season approaches will give a better idea of the warming trend of the soil. An occasional check of soil temperature at 6 to 10 inches may also be helpful. Abnormally cold temperature at these levels will cause slower warming of the 2 to 3 inch planting layer. Measurements should be made in bare soil areas because

soil temperatures under grass or shaded areas will be several degrees cooler.

Soil Thermometer

Soil thermometers for measuring soil temperatures are available through farm supply or hardware stores. Simplest commercially available dial-type thermometers with the sensing element at the end of a 6 to 10 inch small metal rod are satisfactory. Any thermometer will work if it is constructed so the sensing element can be pushed into the soil 3 or 4 inches. The thermometer should remain in the soil at least five minutes for reliable and stable reading especially if metal type sensing units are used. Thermometers measuring temperatures in centigrade scale should read around 10°C at 2 to 4 inches in the morning and 15° to 18°C in late afternoon.

Soil Type

Variation in soil temperatures may be considerable and depends on the moisture content, soil textural type, color and slope of soil. Generally, wet sandy soils like

Maumee require twice as much heat in warming as dry sandy soils like Plainfield. Wet clay soils like Pewamo may require up to 3 to 4 times more heat to warm them than when they are dry. Dark soils absorb more heat than light colored soils on sunny days. Soils on south-facing slopes warm faster than those on north facing slopes. Firm or packed soils warm faster than loose aerated soils.

Weather Forecasts

Future weather conditions play an important role in determining if soils will remain at adequate soil temperature for good germination. Generally a forecast for below normal temperatures, but dry and sunny conditions will result in little or no change in the seasonal warming trend of the soil. Future cloudy, cold, wet weather will produce a rapid decrease in soil temperatures. Warm dry sunny weather provides a moderate rate of soil temperature increase.

Remember that an agricultural weather forecast is as close to you as your radio dial.